

CLAIM AMENDMENTS

5.5 D, >
1. (Currently Amended) An irregular pattern reader comprising:
a prism including
a detection surface on which a subject to be detected, having an irregular pattern, is put, and
~~an a planar incident-plane surface~~ having a first angle of inclination relative to said detection surface, said prism emitting emission light reflected from said detection surface and corresponding to incident light incident upon said ~~incident-plane surface~~;
a first optical system including a light source, light from the light source being incident on said ~~incident-plane surface~~ of said prism ~~and, the light~~ having an optical axis substantially parallel to said detection surface where the light is incident on said incident surface; and
a second optical system for transmitting the emission light emitted from said prism to an image pick-up device.

19
2. (Currently Amended) The irregular pattern reader according to claim 1, wherein said prism has an emission surface from which the emission light is emitted and the emission light is emitted at said emission surface substantially parallel to said detection surface.

3. (Currently Amended) The irregular pattern reader according to claim 2, wherein said prism includes ~~an a planar emission-plane surface~~ having a second angle of inclination relative to said detection surface, ~~and the emission light is emitted from said emission plane.~~

4. (Currently Amended) The irregular pattern reader according to claim ~~2~~ 1, wherein the emission light is emitted from said prism in a direction opposite to the incident light.

5.5 D, >
5. (Currently Amended) The irregular pattern reader according to claim 4, wherein said prism includes a reflection surface having a ~~third~~ second angle of inclination relative to said detection surface, and light from said detection surface diverted at said reflection surface is emitted from said prism through said incident surface as the emission light.

6. (Currently Amended) The irregular pattern reader according to claim 3, wherein said first optical system includes first incident light turning means for diverting the incident light from said light source so the incident light is incident on said incident ~~plane~~ surface.

7. (Currently Amended) The irregular pattern reader according to claim 3, including an image pick-up device, wherein said second optical system includes emission light turning means for diverting the emission light and forming an image on an image pick-up ~~plane~~ surface of said image pick-up device.

8. (Currently Amended) The irregular pattern reader according to claim 3, including an image pick-up device, wherein said second optical system includes lenses of different magnifications in vertical and horizontal directions, and said lenses converge the emission light in one of the vertical and horizontal directions and form an image on said image pick-up ~~plane~~ surface of said ~~an~~ image pick-up device.

506 D. 7
6/9
9. (Currently Amended) The irregular pattern reader according to claim 3, wherein said prism includes luminous flux converging means for converging the emission light on ~~said detection surface~~ the image pick-up device.

10. (Currently Amended) The irregular pattern reader according to claim 4, including an image pick-up device, wherein said prism includes a reflection surface for reflecting the light reflected from said detection surface and a lens portion receiving light reflected from said reflection surface and directing the light to said second optical system, and an image pick-up ~~plane~~ surface of said image pick-up device is substantially parallel to said detection surface.

11. (Currently Amended) The irregular pattern reader according to claim ~~5~~ 2, wherein the light reflected from said detection surface is reflected from said incident ~~plane~~ surface, and emitted as the emission light through said ~~reflection~~ emission surface.

12. (Currently Amended) The irregular pattern reader according to claim ~~5~~ 1, wherein the first angle is less than 45° and more than an angle ~~(θ_3)~~ obtained by subtracting an angle of reflection at said detection surface from 90° .

13. (Currently Amended) The irregular pattern reader according to claim 10, wherein a region through which a luminous flux in said prism does not pass is omitted from ~~a plane of said prism~~ at a surface facing said detection surface.

14. (Currently Amended) The irregular pattern reader according to claim 13, wherein said detection surface of said prism is approximately 20mm in width and approximately 15mm in length, ~~while~~ and said prism is not more than 10mm in a thickness direction extending from said detection surface of said prism to the toward said image pick-up device.

61 15. (Currently Amended) The irregular pattern reader according to claim 10, wherein said first optical system including said light source is located on an electronic substrate, and has a second collimator lens and second incident light turning means located between said light source and said second collimator lens, ~~wherein~~ and incident light is incident upon said ~~incident plane surface~~ incident plane surface from said light source through said second incident light turning means and said second collimator lens.

16. (Currently Amended) The irregular pattern reader according to claim 15, wherein said second incident light turning means includes a transparent block, and an incident light emission ~~plane surface~~ surface of said second incident light turning means includes said second collimator lens.

17. (Currently Amended) The irregular pattern reader according to claim 16, wherein said second optical system is located on ~~said the image pick-up plane surface~~ said the image pick-up plane surface of said image pick-up device.

18. (Original) The irregular pattern reader according to claim 17, wherein said second incident light turning means is not more than 10mm in thickness.

19. (Currently Amended) The irregular pattern reader according to claim 10, wherein ~~said prism has~~ a region through which a luminous flux in said prism does not pass is omitted from a plane said prism at a surface facing said detection surface, said second optical system and said image pick-up device are respectively located on an electronic substrate, and each of the elements mounted on said electronic substrate has a thickness of

no more than 10mm and a length no more than 35mm, and said detection surface of said prism is approximately 20mm in width and approximately 15mm in length.

20. (Previously Presented) The irregular pattern reader according to claim 19, wherein said image pick-up device is mounted as a bare chip on one of said electronic substrate and said second optical system.

21. (New) The irregular pattern reader according to claim 2, wherein said prism includes a convex reflecting surface reflecting to said emission surface light reflected from said detection surface.

61 22. (New) The irregular pattern reader according to claim 21, wherein said emission surface is cylindrical and forms a lens.

23. (New) The irregular pattern reader according to claim 21 including a toric lens mounted on the emission surface.

24. (New) The irregular pattern reader according to claim 2, wherein said prism includes two reflection surfaces and the light reflected from said detection surface is reflected a second time from said incident plane and, sequentially, from each of the two reflection surfaces and is emitted through the emission surface.

25. (New) The irregular pattern reader according to claim 24, including a lens mounted on the emission surface of said prism.